

Amdt. dated June 11, 2004
Reply to Office action of Feb. 11, 2004

Serial No. 09/770,893
Docket No. BLD920000016US1
Firm No. 0036.0076

REMARKS/ARGUMENTS

1. Amendments Overcome Claim Objections and Indefiniteness Rejection
(35 U.S.C. §112, par. 2)

The Examiner objected to claim 35 as including an extraneous phrase. (Office Action, pg. 2) Applicants amended claim 38 as suggested by the Examiner to remove this extraneous phrase.

The Examiner found the use of the term "whose" in claims 1, 22, and 42 was indefinite. (Office Action, pg. 2) Applicants amended these claims as suggested by the Examiner to overcome this rejection.

The Examiner found that there was insufficient bases for the term "the pointer in one reentry data set" in claims 1, 22, and 42. (Office Action, pg. 2) Applicants amended these claims to remove the reference to the "reentry data set". Further, Applicants submit that there is sufficient antecedent basis for the "pointer" provided in lines 4 and 6 of claims 1, 22, and 42.

Applicants amended claims 40 and 41 to correct the issues noted by the Examiner.

2. Claims 1, 2, 5-9, 11-13, 21-23, 26-30, 32-34, 41-43, 46-50, 52-54, and 62 are Patentable
Over the Cited Art

The Examiner rejected claims 1, 2, 5-9, 11-13, 21-23, 26-30, 32-34, 41-43, 46-50, 52-54, and 62 as anticipated by Epstein (U.S. Patent No. 6,381,371). Applicants traverse for the following reasons.

Independent claims 1, 22, and 42 concern decompressing a compressed data stream whose decoded output comprises lines of two-dimensional data, comprising: receiving a compressed data stream; receiving at least one pointer to a location in the compressed data stream, wherein the decoded output of the compressed data stream comprises a location on a line of data; receiving decoding information for each received pointer that enables decoding from a point within the compressed data stream addressed by the pointer in one reentry data set, wherein the decoding information includes data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer; for each received pointer, performing: (i) accessing the location in the compressed data stream addressed by the received

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pointer; and (ii) using the received decoding information including the data from the at least one line of the two dimensional data to decode compressed data from the accessed location.

Applicants amended claims 1, 22, and 42 to further include requirements that the decoding information includes data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer and that the data from the at least one line is used to decode compressed data.

The Examiner cited col. 7, lines 21-34 of Epstein as disclosing the claim requirement of receiving decoding information for each received pointer that enables decoding from a point within the compressed data stream addressed by the pointer in one reentry data set. (Office Action, pg. 4) Applicants traverse with respect to the amended claims.

The cited col. 7 mentions that a minimal coded unit of pixels, i.e., an 8x8 block of pixels, contains a coefficient value for each color channel. The relative coefficient is used to reduce the size of the bit stream. The prescanner calculates an absolute coefficient for each color channel of the minimal coded unit. The calculated absolute coefficient value is the sum of the relative coefficient values.

Applicants submit that the cited coefficient of Epstein does not disclose or suggest the claim requirement that the decode information includes data from at least one line of the two dimensional data preceding the location on the line of data addressed by the pointer. The claims require that the decoding information include the actual data, not coded, from a point in the data stream preceding the location the pointer addresses. The cited Epstein on the other hand discusses coefficients, which comprise transformed data or data in the transform domain, not the data from the lines of two dimensional data that is not coded.

According to Epstein, the coefficient value is relative to the coefficient value of the color channel of the previous minimal coded unit. The calculated absolute coefficient value is the sum of the relative coefficient values for all previous minimal coded units. (Epstein, col. 7, lines 20-35) Thus, the cited coefficient value comprises transformed data and not the actual data as claimed. The claims require that the decoding information includes data from at least one line of the two dimensional data, which is not encoded. The coefficients are not the actual data as claimed and instead comprise transformed data

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Further, Epstein notes the coefficients are DC coefficients. (Epstein, col. 10, lines 1-14) Applicants have included pages from a text book on JPEG encoding entitled "JPEG: Still Image Data Compression Standard", by W. B. Pennebaker and J. L. Mitchell (1993). The cited Epstein describes a JPEG decoding technique. Pages 344 and 345 from this book note that the DC coefficients are produced by applying a forward discrete cosine transformation (FDCT) to transform a block of the data into a set of values, where one value is the DC coefficient and the others are AC coefficients. This book further explains how the cited DC coefficients of Epstein used for JPEG compression comprise transformed data, and not the claimed actual data from the lines of the two-dimensional data.

The Examiner cited the above discussed col. 7 of Epstein as disclosing the requirement concerning using the received decoding information. (Office Action, pg. 4) Applicants traverse with respect to the amended claims.

The cited col. 7 discusses the use of the transformed coefficients. Nowhere does the cited Epstein anywhere disclose using data from the lines of the data, which is not encoded, to decode compressed data from the accessed location.

Accordingly, Applicants submit that claims 1, 22, and 42 are patentable over the cited art because the the cited Epstein does not disclose all the claim requirements.

Claims 2, 5-9, 11-13, 21, 23, 26-30, 32-34, 41, 43, 46-50, 52-54, and 62 are patentable over the cited art because they depend from one of claims 1, 22, and 42, which are patentable over the cited art for the reasons discussed above. Moreover, the following claims provide additional grounds of patentability over the cited art.

Claims 6, 27, and 44 depend from claims 5, 26, and 43 and further require generating the reentry data sets when decoding an input compressed data stream and outputting an output compressed data stream that comprises the compressed data decoded using the reentry data sets.

The Examiner cited col. 5, lines 1-11 as disclosing the claim requirement of generating the reentry data sets when decoding an input compressed data stream. (Office Action, pg. 4). Applicants traverse.

The cited col. 5 mentions a decoder that retrieves information stored in a prescan table to locate and decode encoded areas of the image. Nowhere does the cited col. 5 anywhere disclose that reentry data sets are generated when decoding an input compressed data stream. In fact, the

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cited col. 5 teaches away from this requirement because col. 5 mentions processing the bit stream 8, which is the actual image data, and not an input compressed data stream as claimed.

The Examiner cited col. 4, lines 42-53 as disclosing the claim requirement of outputting an output compressed data stream that comprises the compressed data decoded using the reentry data sets. (Office Action, pg. 5) Applicants traverse.

The cited col. 4 mentions that the image is transmitted to an output device to generate a hard copy of the manipulated digitized image. Nowhere does the cited col. 4 anywhere disclose outputting an output compressed data stream that comprises compressed data decoded using reentry data sets. Nowhere does the cited col. 4 anywhere disclose the claim requirement that the decoded data comprises compressed data.

Accordingly, claims 6, 27, and 44 provide additional grounds of patentability over the cited art.

Claims 11, 32, and 52 depend from claims 1, 22, and 42 and further require using previously decoded data to decode the compressed data stream. The Examiner cited col. 7, lines 20-34 of Epstein as disclosing the additional requirements of these claims. (Office Action, pg. 5) Applicants traverse.

The cited col. 7 discusses the coefficients that are calculated for data from the minimal coded unit, which may be used to decompress the data. However, the claims require the use of previously decoded data to decode the compressed data stream. The cited coefficients comprise transformed data and not the decoded data as claimed, i.e., the lines of data. Instead, the cited coefficients comprise transformed data, not actual decoded data previously decoded.

Accordingly, claims 11, 32, and 52 provide additional grounds of patentability over the cited art.

Claims 12, 33, and 53 depend from claims 11, 32, and 52 and further require that the previously decoded data used to decode the compressed data stream is included in the reentry data sets. The Examiner cited col. 7, lines 30-31 of Epstein as disclosing the additional requirements of these claims. (Office Action, pg. 5) Applicants traverse.

The cited col. 7 mentions that the coefficients are stored to remove any dependency on previous minimal coded units in the bit stream.

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Nowhere does the cited col. 7 anywhere disclose or mention that the reentry data sets include previously decoded data. In fact, the cited col. 7 teaches the opposite because Epstein mentions that the coefficients are stored to remove dependency on previous of the minimal coded units, which is the original image data. However, the claims require that previously decoded data is included in the reentry data sets, which means the reentry data sets have dependency on previous data in the lines, which is the opposite of what Epstein mentions.

Accordingly, claims 12, 33, and 53 provide additional grounds of patentability over the cited art.

Claims 13, 34, and 54 depend from claims 11, 32, and 52 and further require that the previously decoded data is generated when decoding the compressed data stream using the reentry data sets. The Examiner cited col. 7, lines 28-29 as disclosing the additional requirements of these claims. (Office Action, pg. 5) Applicants traverse.

The cited col. 7 mentions that a prescanner calculates an absolute coefficient for each control channel of the minimal coded units and stores this in the prescan table.

Nowhere does this cited col. 7 anywhere disclose that the previously decoded data is generated when decoding the compressed data using the reentry data sets. First off, the cited col. 7 concerns calculating an absolute coefficient, which comprises transformed data. This is different than the claimed previously decoded data, which comprises data from the lines of the data, not transformed data. Further, the cited prescanner is decoding the variable length code words into the coefficients of the minimal coded units, which is the different than using previously fully decoded data.

Accordingly, claims 13, 34, and 54 provide additional grounds of patentability over the cited art.

3. Claims 3, 4, 10, 24, 25, 31, 44, 45, and 51 are Patentable Over the Cited Art

The Examiner rejected claims 3, 4, 10, 24, 25, 31, 44, 45, and 51 as obvious (35 U.S.C. §103) over Epstein.

These claims are patentable over the cited art because they depend from one of independent claims 1, 22, and 42, which are patentable over the cited art for the reasons discussed above.

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4. Claims 14-20, 35-40, and 55-61 are Patentable Over the Cited Art

The Examiner rejected claims 14-20, 35-40, and 55-61 as obvious (35 U.S.C. §103) over Epstein in view of Slattery ("The Qx-coder", IBM Journal of Research and Development, Vol. 42, No. 6, 1998, by M. J. Slattery and J.L. Mitchell). Applicants traverse for the following reasons.

In rejecting the above claims, the Examiner found that the teachings of Epstein may be modified with Slattery, such that Slattery's ABIC lines of nearby data and probability estimates used in ABIC to decode data could be used by Epstein in lieu of the JPEG absolute coefficient values. (Office Action, pg. 8) Applicants traverse.

According to the Manual of Patent Examination and Procedure ("MPEP"), "[i]f proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." MPEP, Sec. 2143.01, p. 2100-127 (8th Ed., Rev. Feb. 2003).

Here, the Examiner is proposing that the history data used in ABIC to decode data, such as the nearest seven bits of data, be substituted for the absolute coefficients used in JPEG decoding. Applicants submit that it is improper to make such a modification because the JPEG decoder algorithm described in Epstein would be inoperable if one were to substitute the DC coefficients used by the JPEG algorithm with the seven nearby pels of image data used in the ABIC algorithm. The JPEG algorithm requires the use of specifically transformed data, such as the DC coefficients that are in a transform domain, to successfully decode data. Substituting nearby pel data, which is used in ABIC, with the JPEG coefficients would cause the JPEG algorithm of Epstein to be inoperable because the algorithm expects the specific DC coefficients in the transform domain, not nearby pixels such as used in ABIC.

Accordingly, Applicants submit that it is improper to modify Epstein's JPEG algorithm to use nearby pixel data, as shown in Slattery, because such modification would render Epstein's JPEG algorithm unsatisfactory for its intended purpose – Epstein's JPEG algorithm would not work and decode data with the nearby pixels and other ABIC specific data, as shown in Slattery.

The Examiner found that col. 5, lines 24-30 of Epstein teaches that Epstein's JPEG technique is compatible with arithmetic decoding schemes. (Office Action, pgs. 8-10) Applicants traverse.

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The cited col. 5 of Epstein mention that there are many encoding schemes that provide techniques to compress the size of data, and that these techniques are well known in the art. Nowhere does the cited col. 5 anywhere say that one may mix and match the variables used in JPEG decoding algorithms, such as Epstein, with variables used in ABIC decoding algorithms. Instead, the cited col. 5 only mentions different compression algorithms known in the art and nowhere suggests that one may mix and match JPEG and ABIC variables in the JPEG algorithm.

Accordingly, Applicants submit that the rejection of claims 14-20, 35-40, and 55-61 as obvious over Epstein in view of Slattery is improper because this proposed modification would not work with the JPEG algorithm of Epstein, thus rendering the Epstein reference being modified unsatisfactory for its intended purpose.

Accordingly, claims 14-20, 35-40, and 55-61 provide additional grounds of patentability over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-62 are patentable over the art of record. Applicants submit herewith the fee for the one month extension of time. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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